

GRANTS Benefit Calculation, Monetization, and Resiliency Tab
A.7 Non-Monetized Benefits

Ecosystem Resiliency –The recharge Program is unique, in that the tertiary-treated water supply is being produced every day, so there is a consistent source of high quality water available throughout the year. That continuous supply creates resiliency because it does not require costly transfers or complex predictions of precipitation patterns and flood control requirements, nor is it subject to competing environmental demands. Under the modeled 2030 and 2070 climate change conditions, the groundwater improvements and surface water benefits from this Program provide the resiliency from climate change impacts. The Program supports and protects the existing private and public investments which have been implemented in the watershed. This, in addition to the proposed Program benefits outlined in the Ecological Plan will occur in the following two ways: (1) reversing the groundwater-stream gradient from losing to gaining, stabilizing and improving the ecological resilience under today's climate; and (2) most starkly, absent the program, baseline conditions in 2030 and 2070 show that the groundwater conditions would not support any of the existing public conservation lands in the area. The ecosystem resiliency is not monetized because the majority of the monetized public benefits are ecosystem benefits. See also Conceptual Ecological Plan, GRANTS Physical Public Benefits Tab, A.1 Ecosystem Benefits

Habitat Connectivity –The Ecological Plan did not directly quantify or monetize habitat connectivity, because this benefit is spread out within the area amongst multiple adjacent or nearby preserves and restoration activities. The Program will increase habitat connectivity in the region that amplifies this ecosystem's ability to provide important ecosystem services, such as wildlife habitat, nutrient cycling, and recreation. The ecological improvements resulting from the Program are distributed across the landscape, increasing habitat connectivity longitudinally along the Cosumnes River, as well as between the Cosumnes River and Snodgrass Slough. As important as the values are ecologically however, there was limited data to be able to define that connectivity without identifying and fixing potential future acquisitions of easements, and even once those characteristics were defined, then being able to quantify and monetize those benefits was not clearly supported in the literature for this mosaic of habitat types.

Preserving working farmlands – The preservation of farmland with annual crops surrounding the Cosumnes River Preserve is an important element of the Preserve's long-term strategy. In addition to being important to the region's economic wellbeing, this is important to a number of key target species of the Cosumnes River Preserve, such as Swainson's hawk. Exploring voluntary arrangements with farmers, along with complementary incentives to preserve prime agricultural lands within the Program area could help encourage wildlife-friendly farming practices. In this way the Program can also support regional planning efforts, such as the American River Basin Integrated Regional Water Management Plan and the Sacramento Area Council of Governments' 2008 Rural-Urban Connections Strategies. The cost of preserving working farmlands is unpredictable, as the changing patterns of agricultural landscapes are mostly driven by economic considerations of the farmer.

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Improving groundwater dependent ecosystem science – UC Davis and The Nature Conservancy are conducting a combined extensive research and groundwater monitoring program for understanding groundwater dependent ecosystems at the Cosumnes River Preserve. This Program provides an unparalleled opportunity to improve the science of determining what levels of groundwater recharge are most beneficial for a riparian forest. The information gained from the Program’s monitoring efforts will contribute to the research efforts of UC Davis and The Nature Conservancy. Results can then help guide long-term adaptive management of the Program, particularly in potential future groundwater banking scenarios. Studies will also inform development of broader Sustainable Groundwater Management Act (SGMA) related groundwater dependent ecosystem standards for beneficial uses, thresholds and desirable results. This cost cannot be monetized because there have not been any studies to say how much this research is worth, specifically in relation to groundwater dependent ecosystems.

Sustainable Groundwater Management Act (SGMA) Compliance – SGMA requires Groundwater Sustainability Agencies (GSA) to be formed in medium and high priority basins to create and implement Groundwater Sustainability Plans (GSP) for achieving sustainable groundwater management. The South County Ag Program is located within the Sacramento Valley groundwater basin, South American subbasin which is classified as a high priority basin by the California Department of Water Resources (DWR). The GSA for this area, the Sacramento Central Groundwater Authority (SCGA), submitted an Alternative to DWR in December 2016. SCGA continues to operate under the management goals set forth in the 2006 SCGA Groundwater Management Plan (GMP) and the South County Ag Program will help achieve those goals. Regional San will work with SCGA and other relevant agency or agencies to operate the Program in a manner that will help facilitate GMP goals and implementation of SGMA. The costs of SGMA implementation will be incurred by SCGA, and no estimate for the cost is publically available.

Increasing Regional and State Water Supply Reliability – Through conjunctive use, a portion of stored groundwater could be withdrawn in dry years to meet a wide range of needs for regional and state agricultural and municipal users. It is assumed that approximately 30,000 AFY would be available for extraction in the driest 30 percent of years. Extraction of “banked” water would be monitored to avoid extracting more than 30 percent of recharged water. This conjunctive use element would allow banking partners to limit their surface water diversions during times of drought and shift to groundwater pumping of the banked water. Those reductions in surface water diversions could potentially be sold to other entities for municipal or environmental uses, improving water supply reliability in the Program area, as well as in the Delta and the State. The benefit of the banked water supply to the banking partners is conservatively estimated in the cost allocation and economic feasibility portions of the WSIP grant application, based on analysis initially conducted as part of the Feasibility Study (see pg 5-5 of the Feasibility Study, <https://www.regionalsan.com/general-information/south-county-ag-feasibility-study>). The Program is in the early stages of developing a groundwater bank and

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determining conjunctive use partners, therefore the cost of providing this water beyond the banking partners cannot be determined.

Emergency Response – The infrastructure that will be put in place to deliver recycled wastewater to agricultural fields and wetlands in the Project Area will have the ancillary benefit of making water available to the Cosumnes Fire Department. The fire department needs additional water to support its operations outside of the municipal areas, and for the municipal areas that are served by lower capacity wells and tanks. While this benefit is difficult to monetize because of the lack of analogous scenarios in other locations and the highly variable frequency of wildland fires, the availability of water to emergency responders is likely to be highly valuable in terms of human health and property in rural communities within and near the Project Area. Currently, water has to be pumped from ponds, ditches, or any available surface water source during fires and other emergencies. With minor modifications to the planned infrastructure, reliable, consistent water can be supplied by the project that will increase the volume available in emergencies, as well as reduce the response time to secure additional water. This could significantly preserve property that may otherwise be damaged and, most importantly, reduce potential injuries and fatalities. Feasibility and regulatory compliance would be further explored during the early design phases of the Program.

Monetization of the emergency response benefit is cost prohibitive due to a variety of factors. Firstly, the process for monetizing this benefit includes the need to find analogous scenarios, but the use of recycled water for firefighting is a recent and developing practice in California. Examples do exist in various parts of the State, but data availability is limited and highly variable. Secondly, the level of effort to quantify this benefit is substantial. Fire risk in the Program area would need to be calculated to determine a likelihood for an event to occur, and would likely require additional analysis on how historic conditions might be expected to differ under various climate change scenarios. This risk would be analyzed against the potential severity of impacts of a fire to determine potential monetary impacts of a fire and the capabilities of the proposed Program to reduce those impacts. However, the complexity of that analysis, and the lack of similar recycled water fire support examples, made monetization too complex and potentially speculative.